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16th May 2021

Via email

Dear Ms Albon

Respiratory Protection against COVID-19 for Healthcare Workers

Thank you for your letter of 29th April confirming that you were reviewing the SAGE report [S1169 Facemasks for health care workers](#), which had been published on 23rd April.

As mentioned in the closing remarks of my letter of 21st April, I did not anticipate continuing any protracted correspondence or debate with you on this matter, since I anticipated that HSE's involvement in the production of that SAGE paper would stimulate a change in policy which would finally lead to healthcare workers (HCWs) being provided with effective respiratory protection against aerosol transmission of COVID-19. I also added that if it did not achieve such a policy change then I would be in touch again. It hasn't stimulated any such policy change, neither are there any indications that it will. I therefore find it necessary to make further representations to you.

Having now studied that SAGE paper, I have to say I am not just disappointed, but utterly dismayed, at the way the fundamental principles which underpin good health and safety practice in this country (the 'hierarchy of risk controls', 'precautionary principle' etc) have been so contorted and wilfully misused in an attempt to dismiss the contribution that effective respiratory protection (such as FFP3 respirators, reusable half/full-face respirators or powered respirators) can play in the close-quarter care of infected patients.

Although there are one or two helpful comments in the paper, the overall theme, tone and direction of the paper comes across as having a deliberate and carefully considered intention objective of providing a platform upon which the PHE/DHSC IPC policy-makers may continue on their unswerving path of denying HCWs the respiratory protection which they so richly deserve against this disease.

In this letter I shall:

- 1) Respond to your latest comment about HSE's research report RR619
- 2) Explain, as a courtesy, the reason for my Freedom of Information Requests (attached)
- 3) Provide my comments on SAGE paper S1169

I also seek clarification as to the extent of HSE's involvement in directing, influencing or supporting PHE/DHSC PPE policy, since it alleged by some seemingly authoritative sources that their policy decision has been mandated by HSE and the NHS 'IPC Cell' is simply following your instructions on this.

As previously mentioned, I am sharing this correspondence with the groups of medical practitioners and the professional associations/unions which represent them – such as the AGP Alliance and FreshAir NHS. This letter is therefore written with the intention, not only of conveying my representations to you, but also of communicating my review of S1169 to these medical professionals.

I have been approached by a journalist who has seen my [COVID report](#) on the internet. He has requested copies of my correspondence with HSE. Thus far I have declined to provide this on the basis that it would not seem right to do so whilst the correspondence between us is still ongoing and certainly not until you have been afforded the opportunity of replying to this letter should you so wish. Please would you advise if you have any problems with me sharing the correspondence in this way – although I imagine he could obtain it direct from HSE under a Freedom of Information request.

1) HSE Research Report RR619

Thank you for your comment regarding report [RR619 Evaluating the protection afforded by surgical masks](#). I note that you have spoken with one the authors of the report. However, I still read the scope and intention of the paper as it was recorded in black and white in the paper itself. It was indisputably to evaluate the effectiveness (or otherwise) of surgical masks in respect of an aerosol risk arising from close-quarter contact with an infected patient coughing or sneezing.

As such it was directly relevant and applicable to COVID-19 (or any aerosol-borne pathogenic virus) in its findings that surgical masks offer minimal protection against such aerosols. Neither I, nor any other reader of that report, is likely to be persuaded by any assertion, even from the report's author some 13 years later, that the purpose of the report was anything else. This cannot be 'air-brushed' out for the sake of present-day convenience. No matter how much I try and read that paper from different perspectives, I can still find no substance in your claim that "RR619 does not contradict current Four Nations COVID-19 IPC guidance" (*ref : your letter 20th April*).

You mentioned, in that same letter, your understanding that current IPC guidance for healthcare settings recommends the use of "FFP3 masks when providing direct patient care" as well as when performing aerosol generating procedures. I wish it was, indeed, the case that their guidance recommended FFP3 masks when performing all 'direct patient care' with COVID patients but sadly it is not.

That IPC guidance remains flawed, misguided and positively dangerous in its assertion that surgical masks provide adequate respiratory protection against inhalation of airborne virus. I think this is a point upon which we shall have to disagree and need not debate further. Suffice it to say that HSE's reluctance to censure PHE/DHSC for having issued guidance which endangers HCWs brings the organisation into disrepute. As previously mentioned, the issue of a Crown Improvement Notice to require a policy change remains an option available to you.

However, on a more positive note, I remain delighted to have received, in your earlier letter of 20th April, definitive confirmation from HSE that "***surgical masks should not be used in situations where close exposure to infectious aerosols is likely***". This is most helpful to the campaign for effective Respiratory Protective Equipment, given the recently published World Health Organisation [guidance](#). This confirms their acceptance that transmission of the disease occurs as a result of close exposure to the infectious aerosols emitted from an infected person's nose or mouth, even just through breathing or speaking (let alone coughing, sneezing or undergoing AGP).

I am sure you are already aware of the W.H.O. opinion but, for the avoidance of doubt, it states:

- **The virus can spread from an infected person's mouth or nose** in small liquid particles **when they cough, sneeze, speak, sing or breathe**. These particles range from larger respiratory droplets to **smaller aerosols**.
- Current evidence suggests that the virus spreads mainly between people who are **in close contact with each other, typically within 1 metre** {*as when tending a patient*} (short-range). **A person** {*such as a healthcare worker*} **can be infected when aerosols** or droplets **containing the virus are inhaled** or come directly into contact with the eyes, nose, or mouth.

This same view about airborne transmission of the disease via aerosols is now held by the [HM Government](#).

I am sure you will now appreciate how helpful it is to have received confirmation from the highest authority in the HSE that "***surgical masks should not be used in situations where close exposure to infectious aerosols is likely***" since it maps directly and incontrovertibly onto the scenario of a healthcare worker caring for, and in close proximity to, a person who has COVID-19, now that WHO and HM Government have both confirmed disease transmission via the aerosol route at close range.

It will no doubt take some while before PHE/DHSC are able to update their IPC guidance to reflect the above WHO/HSE advice but meanwhile I trust you will press them to expedite the necessary changes. It should be noted that this revised WHO guidance about close-contact aerosol transmission of the disease has been introduced after the SAGE report [S1169](#) and another report in the [Journal of Hospital Infection](#) which seeks to justify the continued use of surgical masks for RPE purposes. The WHO guidance about close-contact aerosol transmission effectively negates both reports, both of which will need to be reviewed and revised to pay due credence to the WHO guidance. Meanwhile neither report can be relied upon.

2) Freedom of Information Request (attached)

At the present time, a document produced by ARHAI Scotland is displaying two statements on the internet which are of concern to me, since I find it difficult to believe that they are true. These are:

- a) [‘Rapid Review of literature’](#): Assessing the IPC and control measures for the prevention and management of COVID-19 in health and care settings v 14.0 7/5/2021’

In the last paragraph on page 35 they state : “[The UK Health and Safety Executive \(HSE\) position regarding RPE has remained unchanged; currently the use of respirators, such as FFP2 or FFP3, are only for the highest risk aerosol generating procedures which are undertaken in medical settings and during dental procedures \(correspondence provided by the UK IPC Cell\).](#)”

- b) [ARHAI Response](#) to a report by the Royal College of Nursing, in which they clearly state “[The Health and Safety Executive have approved the PPE section within UK IPC COVID-19 guidance.](#)”

In your previous letters you have confirmed that “HSE does not lead on the IPC guidance”. This makes me feel that it is highly unlikely that HSE has ever made any such statement to the IPC Cell or anyone else. Such a statement would infer that HSE position is that FFP2/3 respirator masks must not be used for any other healthcare scenario. It is beyond belief that HSE would take that stance.

As things currently stand, these two statements pronounce to the whole world that the policy in the UK for equipping most healthcare workers with surgical masks whilst dealing with COVID positive patients is entirely prescribed or approved by the HSE.

This clearly paves the way for HSE having to bear ultimate responsibility and accountability for COVID-19 infections and deaths of healthcare workers which they may have sustained whilst following this policy. I’m not sure that this is a brush you would wish to be tarred with?

If these ARHAI statements are untrue or inaccurate in any way, then you should insist that they retract and remove them without delay and, in any event before their next publication of the rapid review which will be ‘version 15’. If the statements do reappear in version 15 (which is likely to be issued early in June), the assumption will be drawn that those statements are true and HSE is content for them to remain in print. I shall await the publication of that document with interest.

On a separate, but possibly related matter, may I draw your attention to another statement that ARHAI attribute to yourselves. If you refer to page 38 in the above-mentioned ‘Rapid Review’ document they state that “[The Health and Safety Executive \(HSE\) advises that in the event of severe shortages of medical masks, face shields may be considered as an alternative, but that they cannot be used as a substitute for respiratory protection.](#)⁵¹⁸”.

If you then refer to the link at ‘518’ you will see that actually the organisation which made this statement was actually the “[Health Service Executive](#)” in Ireland which is of course the equivalent of our NHS/DHSC. The document ARHAI refer to may be found at [this location](#) on the Irish HSE website.

It speaks volumes that, in their response to the excellent RCN report, ARHAI have the effrontery to describe the RCN report as “seriously flawed” when they (ARHAI) themselves cannot seem to distinguish between the Irish Health Service and the UK Health and Safety Executive! You may therefore wish to inform ARHAI that they are misquoting their source, none of which does their credibility much good, given that the Four Nations IPC Cell seems to set so much store by their advice.

I am wondering whether their quotes in (a) and (b) above may also be attributable to the Irish Health Service Executive, rather than yourselves? Please would you clarify the highly confusing picture conveyed by ARHAI.

3) Comment on SAGE paper [S1169 Facemasks for health care workers.](#)

3.1 Authors

Most scientific papers include, within the document, details of the authors. For documents which serve to advise Government on important matters such as this, it should be made clear exactly who has authored the document since they may, at some stage in the future, be called upon to justify (and be questioned under oath upon) their evidence. This could happen at a public inquiry, judicial review or civil litigation brought by bereaved families or trade unions.

I note that the authors of this document prefer not to be named. The page on gov.uk has changed since the document was first uploaded, when it was simply stated that the "paper was prepared by a group of academics, including the Environmental Modelling Group (EMG)". The names of the members of EMG are available on gov.uk, but one was left to wonder who the others academics were.

However, on the SAGE 'weekly update' at the time, it simply said the paper was prepared by the EMG (and no one else). Now the page has been amended to include the additional 20 members of the Hospital Onset COVID-19 Infection Working Group (HOI), over and above the 14 members of EMG.

You mentioned in your previous letter that HSE had contributed towards this paper and I see that Professor Andrew Curran, HSE's Chief Scientific Advisor, is Chair of EMG. I therefore assume that he is responsible for contributing (or at least overseeing) the content relating to the health and safety content of the document ('hierarchy of risk controls', 'precautionary principle', information about HSE inspections at hospitals etc).

3.2 Suitability of Fluid Resistant Surgical Masks (FRSMs) for protection of HCWs

The authors of this paper cannot possibly have been unaware of the debates and arguments raging as to whether FRSMs provide wearers with sufficient protection against airborne transmission of the disease from person to person.

Given the title of this paper, this was a golden opportunity to have set this matter to rest, once and for all, and confirm that FRSMs do not provide 'inbound' protection against inhaling the virus once airborne due to (a) their construction and (b) the loose fit of the masks. (See [COVID report](#), section 5). As such, this was an opportunity missed. One can only speculate that the reason for this arises from an understandable reluctance to admit that all PHE/DHSC guidance hitherto on this topic to date has been wrong and misled HCWs into believing that these masks adequately protect them, thereby engendering a false sense of security. To what extent this may have led to infection, illness and death amongst HCWs is a matter for others to adjudge in a legal setting, but on the face of it there is most certainly a case to answer.

It is good to note on page 8 that the authors confirm, in a discussion about airborne vs droplet transmission, that where pathogens are classed as 'Airborne', "***strict PPE controls are required, including FFP3 masks***".

Professor Curran and the other authors should be aware that, as confirmed in a [paper](#) way back in April 2020, both PHE and NHS England had [classified COVID-19 as an 'airborne' disease](#). Furthermore, as already mentioned, since the SAGE document was published last month, WHO [guidance](#) has now confirmed airborne transmission via aerosols at close range.

You should therefore insist that Professor Curran reverts to the EMG with a recommendation that they stand by their statement "***strict PPE controls are required, including FFP3 masks***". This policy should now be implemented in practice and the IPC guidance changed in line with this latest development – even if this is only for close-quarter care of infected patients (e.g. at the bedside, in ambulances etc). Of course there are plenty of alternatives to consider other than disposable FFP3 masks such as reusable half masks, full face masks, powered respirators etc.

3.3 HSE's view on nosocomial transmission arising from hospital inspections

I appreciate your views, as expressed in your letters and echoed in the SAGE paper that there are multiple factors which affect nosocomial transmission. It seems that you place great emphasis on

the limited number of inspections that HSE made of hospitals during the second wave. I am no statistician but inspections of just 17 out of the 1200+ hospitals in the UK does not seem sufficient to withstand much scrutiny from a statistical perspective.

On page 15, you provide detailed statistics of your findings (eg that 8 hospitals out of 17 = 47%). Whilst this demonstrates dextrous use of a calculator to perform simple calculations, it would have been more meaningful had you also analysed the actual infection/death rates (i.e. infections/deaths per number HCWs involved in close-contact care of covid patients) between these 17 hospitals. This would have given a better indication as to whether the compliance aspects to which you frequently refer, had any actual bearing on disease transmission in comparison to infections contracted through close patient care.

You provide no evidence whatsoever that the compliance issues at the 8 hospitals of concern to you correlate to any increased disease transmission in those hospitals and yet these statistics are then used to steer attention away from providing respiratory protection and focus mostly on management and behavioural issues.

I note that there are multiple references throughout the paper to "non-compliance" with COVID-Secure arrangements not only by Trusts (body corporate) but, in particular, by individual healthcare workers as well (pages 1, 3, 9, 15, 16 and particularly the whole section headed "Behaviour, compliance and comfort" on pages 10-11).

I suspect that most HCWs will see this as a flagrant attempt to divert attention away from the systemic, nationwide failure to provide them with the RPE that they need and instead to blame them, themselves, for their misfortune and the fact that they have contracted the disease in their thousands and died in their hundreds.

The undeniable fact is that we now have WHO confirmation that the disease is transmitted via exposure from person to person via aerosols at close range. We also know that FRSMs do not protect wearers against aerosols at close range. So for SAGE, HSE or any other authority to cast blame upon the healthcare workers themselves for contracting the disease is frankly outrageous and, to quote a certain Shakespearean character, "the unkindest cut of all".

Those who cast these accusations against them should bear in mind that, through both waves, these dedicated staff have been fully aware of the risks associated with COVID-19, given the sheer magnitude of severe illness, misery, suffering and death that have witnessed on a day-to-day basis. This is particularly poignant when so many of these casualties have been their own friends and work colleagues. Of all the different workforces across the country, these people will have been the most acutely alert to the need for compliance with COVID safety arrangements and will have done their best to keep themselves covid-secure within the constraints of the premises and environments where they work.

3.4 The 'hierarchy of risk control'

Whilst I have been pleased to see that reference to some basic health and safety principles mentioned in the SAGE paper, it is disappointing to see them misused.

Whilst fully accepting that we always endeavour to reduce risk to a reasonably practicable level by elimination, reduction, engineering controls and management controls as a priority, it is wholly inappropriate and a travesty to see them used as a means to dismiss the provision of appropriate respiratory protective equipment.

In this discussion I am only concerned with the care of patients at close-quarters – literally working within a metre or two from the patient's face and therefore, according to WHO, at risk of contracting the disease from exhaled aerosols. This would apply to ambulance crews (in their vehicles and patients' homes), emergency departments, general wards with cohorted COVID patients, COVID-designated areas in care homes etc. I shall work through the hierarchy of controls for this particular scenario:-

- "Elimination" of the hazard :
 - Not possible.
 - As WHO and HM Government now confirm, aerosols will be emitted into the air around them with every exhaled breath, cough, sneeze and whenever the patient speaks.
 - The opportunity to 'eliminate' might be viable in future pandemics, given a faster response at Government level to secure the borders, restrict international travel and

impose strictly-enforced quarantine measures on returning nationals at secure locations, following the New Zealand model (rather than relying upon individuals' sense of social responsibility to self-isolate).

- "Reduction at Source" :
 - The SAGE paper assigns great significance to the wearing of FRSMs for so-called 'source control'.
 - Without doubt, FRSMs will reduce droplet emission from coughs and sneezes.
 - However, it has been shown that their effectiveness is quite limited when it comes to infectious aerosols, which pass between the parties despite both wearing surgical masks (see my [paper](#), references 32 {page 19} and 42 {page 26})
- "Substitution" :
 - Bizarrely, this is mentioned in the as an element in the hierarchy in this context.
 - This shows something of a lack of understanding on the part of the authors. This is disappointing, given that your Chief Scientific Officer, as a member of the EMG either co-authored this paper or at least should have had oversight of the H&S content.
 - Whilst 'substitution' is often a very real element in the hierarchy for chemicals (*i.e. either use a less hazardous chemical or a chemical in a less hazardous physical form*) I should be interested to learn how they propose to 'substitute' the trillions of SARS-CoV-2 viruses within an infected person's body for a less hazardous disease!
- "Engineering Controls" : Clearly ventilation is the option which comes to mind, of which there are two main options:
 - General ventilation (aka 'dilution ventilation'):
 - Passive: (opening windows and doors) cannot be relied upon to provide air velocities sufficient to make a great deal of difference to the "close-contact" scenario we are considering here (bedside/ambulance). The opening of windows and external doors is often not reasonably practicable either because there aren't any, or external weather conditions are not conducive or for security reasons.
 - Mechanical : This is most certainly not something to be dismissed. However the installation of new mechanical ventilation systems (or upgrade to existing) to improve general room ventilation is not something that can be done overnight. It is also debatable whether it would produce sufficient air velocity to clear aerosol in the 'close-contact' scenario being considered here.
 - Local Exhaust ventilation (LEV):
 - It would seem impracticable to place a 'captor hood' above a patient's head in the sense that one might use LEV for removal of, say, a plume of welding or soldering fume.
- "Management Controls" e.g.
 - Social distancing : irrelevant when having to provide close-contact care to an infected patient
 - cleaning/disinfection regimes are mentioned. Although clearly relevant to fomite and re-aerosolisation transmission, irrelevant to the circumstance of exhaled aerosol being directly inhaled by another person in close proximity

So we have now arrived at the bottom of the hierarchy without having identified any control measures further up the hierarchy which will reduce risk so far as is reasonably practicable.

So we are left with "PPE" (in the true sense of the word "PPE", rather than the 'colloquial' term it has now become, which wrongly includes FRSMs).

The inadequacy of the SAGE paper is best illustrated on page 5, in the section which actually has the audacity to refer to the provision of PPE as a "bolt-on measure".

For the avoidance of doubt, PPE is not a "bolt-on measure". In the context of respiratory protection it is a valuable method for protecting workers' health and safety when in an environment containing an airborne hazard such as, in this case, a pathogenic virus which is known to have lethal

consequences. As such, PPE is an intrinsic component of the 'hierarchy of control' and most certainly not a "bolt on".

Given the HSE's involvement in the preparation of the paper, it is disappointing that HSE's own published guidance has not been taken into account. The 'bible' for respiratory protection is [HSG 53 "RPE at work – A practical guide"](#). Paragraph 20 makes it clear that it is perfectly acceptable to use RPE where a residual risk remains after other controls have been implemented and/or as an interim measure whilst other control measures (e.g. improvements in ventilation) are put in place.

The authors also seem unaware of HSE guidance at appendix 6 of the same document (or choose to ignore it because it does not suit their agenda).

Paragraph 6 of appendix 6 specifically relates to the selection of RPE for biological hazards as defined in the Control of Substances Hazardous to Health Regulations 2002 (as amended) (COSHH). It states "*When in an airborne state, micro-organisms can be classed as particles, so they can usually be removed by filter-type RPE. **You should always use equipment fitted with the highest efficiency filter possible (protection factor of at least 20) to control exposure down to the lowest levels***".

SARS-CoV-2 is defined under the COSHH Regulations as a "Hazard Group 3" pathogenic virus which puts it in the same dangerous classification as, for instance, MERS, SARS-1, HIV, Hepatitis B, Hepatitis C, Polio (Type 2), Dengue Virus, Yellow Fever and most encephalitis-causing viruses. According to the HSE's own advice on page 29 of HSG-53, only FFP3 masks will provide a protection factor of 20. Alternatives are reusable respirators with P3 filters (pages 30/32) or powered respirators with TM2/3 filters (page 34).

As stated in your RR619 research paper "no protection factors are assigned to surgical masks", "they do not offer respiratory protection" and "it is a common misperception that they protect against aerosols".

It is therefore absolutely incomprehensible to me as to how the HSE's Chief Scientific Officer can co-author a document which advocates the use of surgical masks for use with COVID-19 patients.

In order to further illustrate the fact that HSE recognises that RPE is not a "bolt on", but is an intrinsic component of the 'hierarchy of control', I would like to consider another working environment where the presence of another airborne hazardous substance presents the risk of serious disease and death, for which no engineering or management controls will adequately reduce the risk to the worker i.e. where PPE must be used, even though PPE is lowest in the hierarchy.

I refer to non-licensed work with asbestos. Both asbestos fibres and SARS-CoV-2 viruses have potentially lethal outcomes, albeit against different timescales. I refer you to HSE guidance "[Asbestos Essentials – EM6](#)") for the respiratory protection of workers carrying out such work:

- Use suitable RPE with an Assigned Protection Factor of 20 or more.
- Suitable types of RPE:
 - disposable respirator to standards EN149 (type FFP3) or EN1827 (type FMP3);
 - half mask respirator (to standard EN140) with P3 filter; or
 - semi-disposable respirator (to EN405) with P3 filter.

I trust you see the direct parallel for workers with airborne viruses circulating within their breathing zone. RPE is a recognised and accepted means of control.

3.5 Risk Decision Frameworks - The 'Precautionary Principle'

This section on page 5 flagrantly seeks to dismiss the importance of adopting the 'precautionary principle'. This is in an overt attempt to escape from the argument that has hitherto been raging between the various experts for over a year as to whether SARS-COV-2 can or cannot be transmitted via the airborne/aerosol route and hence which RPE is appropriate. That is the 'uncertainty' which is under contemplation here. The 'uncertainty' has arisen through:

- a) on the one hand, those organisations such as PHE, DHSC (IPC Cell) and WHO (which seems to be recognised as the ultimate authority) vehemently maintaining that the primary routes of transmission are indirect through fomites/hand-to-face transmission and droplet transmission, equally vehemently denying the aerosol route of transmission and therefore believing FRSMs are adequate;
- b) whilst, on the other hand, many groups of healthcare professionals and the organisations which represent their interests, maintain that aerosol transmission has always been possible, over and

above the designated AGPs and therefore maintain that FFP3 (or RPE to a similar standard) is required.

The argument for invoking the 'precautionary principle' has been based on this long-standing uncertainty amongst the scientific and medical communities and that "erring on the side of safety" is the obvious way to go, given that HCW lives are on the line.

Happily, the 'uncertainty' has now been dispelled by WHO having switched its position from (a) to (b) by finally confirming that the disease can be passed via the aerosol route between persons in close contact simply via exhaled breath (as previously discussed).

Once the 'uncertainty' ceases to exist, the precautionary principle, through its very definition, no longer has any relevance. The risk control measures required must now suit the scientific certainty.

However, before leaving the subject of the 'precautionary principle' I have to say that the authors have 'cherry-picked' parts of the HSE's "[Reducing Risks – Protecting People](#)" (R2P2) document, drawing text about "credible scenarios" from paragraph 93. However they mischievously stop just short of the example given in that paragraph which reads "*The credible scenarios can range from a 'most likely' worst case to a 'worst case possible' depending on the degree of uncertainty. For example, by assuming that exposure to a putative carcinogenic chemical will cause cancer, the chemical becomes subject to a very stringent control regime*".

So, we can be quite justified in substituting "potentially lethal pathogenic virus" for "putative carcinogenic chemical" since both scenarios may result in death (albeit against different timeframes) and therefore conclude that, for either scenario, a "stringent control regime" is warranted.

Consider the circumstance that if one of my clients engaged me to advise on risk controls for a process which involved a "putative carcinogenic chemical" and for which no effective engineering controls were yet in place. If I were to advise that they should equip their employees with low grade respirator such as a 'nuisance dust mask' or an FFP1 to avoid inhalation of the dust, HSE would most likely prosecute me under section 36 of the Health and Safety at Work etc Act 1974. I trust that you can see the parallel with PHE advising HCWs to wear FRSMs – hardly the 'stringent control regime' one might reasonably expect for a potentially lethal pathogenic virus.

3.6 Miscellaneous

- On page 4 of the SAGE report, considerable importance is attached to the fact that outbreaks have occurred in 'unexpected' speciality areas such as orthopaedics and haematology. It also notes that outbreaks have been known to occur in wards without COVID-19 patients. The authors conclude from this that "direct clinical exposure 'per se' may not be the greatest risk factor in acquiring the disease in a healthcare setting".

This argument is clearly presented to detract from the potential for direct close-quarter transmission between patient and HCW.

Of course an equally plausible explanation is the well-known potential that this disease has for 'clustering' (i.e. the 'K factor') and that the outbreaks in these 'unexpected' areas may simply be attributable to a person being present in such places (whether patient or staff) who may be a symptomless 'super-spreader'. This can happen in any workplace, including orthopaedics and haematology departments of a hospital or, indeed, in any other 'unexpected' area for that matter.

- There is one particular section of the SAGE report which, on page 11, refers to a previous paper (given at reference 31: [EMG-NERVTAG. Duration of wearing of face coverings, 15 Sep 2020](#)).

The narrative in the SAGE paper sets out just about every type of negative aspect imaginable relating to FFP3 masks, which it attributes to this EMG-NERVTAG paper i.e. facial dermatitis, increased work of breathing, respiratory fatigue, impaired work capacity, increased oxygen debt, early exhaustion at lighter workloads, elevated levels of carbon dioxide and increased nasal resistance. It makes no mention whatsoever of the positive benefits of such masks (i.e. that they actually do work, prevent aerosol inhalation and thereby help to prevent infection and death). This would make for a more balanced and objective view, rather than the skewed opinions offered.

Nevertheless, taking these points in turn - a quick check in the EMG-NERVTAG paper reveals that:

- **Facial Dermatitis** : There is no mention whatsoever of 'facial dermatitis' as such. It does, however state that surgical masks can be uncomfortable and increase the likelihood of skin complaints. It says that surgical masks can cause 'retroauricular dermatitis' (behind the ear),

due to the earloop type masks. Of course this cannot happen with FFP3 or reusable respirators which are not held to the face in this way.

- **Increased Work of breathing** : The only mention of difficulty breathing is that it says that 12% to 34% of people report difficulty breathing with surgical masks.
- **Respiratory fatigue** : There is no mention whatsoever in the EMG-NERGTAG paper of "respiratory fatigue". It does, however, state that both surgical masks and filtering facepiece respirators both had a negative impact on pulmonary capacity, but only whilst wearing the mask during exercise. The study identified "no evidence relating to impacts on breathing (*for either type of mask*) for those who are not exercising".
- **Impaired Work capacity** : There is no mention of "impaired work capacity" whatsoever.
- **Increased Oxygen Debt** : There is no mention of "increased oxygen debt" whatsoever. However the EMG-NERVTAG paper does say that there is "no good evidence that face coverings (*of any sort*) significantly impact on normal breathing or oxygen levels (apart from some small effect during exercise)".
- **Early exhaustion at lighter workloads** : There is no mention of "exhaustion" whatsoever.
- **Elevated levels of carbon dioxide** : There is no mention of "carbon dioxide" whatsoever.
- **Increased nasal resistance** : There is no mention of "nasal resistance" nor any adverse effects on the nose whatsoever.

Given that the above EMG/NERVTAG paper bears no resemblance whatsoever to the items attributed to it in the SAGE paper under consideration here, it may be that the authors have misquoted the reference and in fact are referring to some other, entirely different paper. This speaks volumes about the authors' factual accuracy and attention to detail.

The SAGE paper then goes on to quote the HSE as "noting that RPE can give a sense of false protection, especially when not worn in accordance with the manufacturer's instructions" and cites the reference #33. Once again, there is no such comment on that web page nor, in fact, anywhere I can find on the whole HSE website.

My response to this comment is that:

- Wearing **any** PPE wrongly will lead to a false sense of protection. For instance, a surgical mask with ear loops donned with the ear loops crossed over will increase the gap between the mask and the face (see [WHO guidance](#) for donning surgical masks). So the "false sense of security" is not something peculiar to FFP3s as the authors would seem to believe;
- It is frankly disgraceful that the authors of this paper should even dare to mention a "false sense of security" in the context of FFP3 masks. This pales into significance when compared with the "false sense of security" that has been engendered on an astronomical scale by the deception perpetrated by PHE/DHSC upon healthcare workers leading them to believe that surgical masks will protect them from contracting this airborne disease.

The authors of the SAGE paper seem to have had a total fixation upon FFP3 as being the only form of respiratory protection. One might have hoped that they may have had sufficient knowledge about RPE to appreciate that there are other types of equipment that provide as good, if not better, protection than filtering facepieces such as reusable respirators (half masks and full face masks) and powered respirators.

The paper stresses the point that FFP3 respirators are uncomfortable to wear. I would offer the following observations:

- This comment can equally apply to most other forms of PPE.
- Considering the other forms of RPE mentioned above:
 - Reusable masks:
 - Are considered by many to be more comfortable, with the soft rubber seal to the face;
 - Wearers are unlikely to experience any CO2 build up due to there being an exhalation valve (which can be protected with a surgical mask if there is a concern about the HCW possibly being infected and passing it on to the patient).
 - Powered respirators:
 - Offer a pleasant, cooling stream of filtered, purified air over the face;
 - Good for working in hot environments or for those who cannot wear tight-fitting RPE for one reason or another.
- As is always the case, a balance has to be struck between the discomfort which may be experienced by the wearer vs the potential benefit to the wearer.
 - With the greatest of respect, it is presumptuous of the authors to think that they know best.

- In a survey of almost 500 doctors, undertaken by MedSupplyDrive UK[†] in October 2020, the question was asked "Would you use a reusable half mask?". The results were a resounding "YES", with 80% saying that they would, 15% saying that they already do and only 5% saying no.
- In a second survey carried out in March-April this year, the question was asked "For respiratory protection, do you feel safe wearing a surgical mask within 1 metre of a COVID-19 positive patient?" Almost two-thirds of the doctors and other healthcare workers surveyed returned a resounding "NO".

[†] *MedSupplyDriveUK is a charity run by volunteer NHS doctors, medical students and others concerned for the safety of frontline healthcare workers. They assist in the provision of PPE to frontline staff and have helped in the provision of more than a quarter of a million PPE items to more than 500 health and social care establishments across the UK.*

It is pleasing to see that some NHS Trusts, having little faith in the national IPC policy, have already implemented their own initiatives to provide effective RPE for their staff. For instance the South West Ambulance Service Trust have issued their frontline paramedics with Versaflo powered respirators with hoods. I know that some hospitals have also given short shrift to the IPC policy and equipped their staff, including porters, Estates workers etc with FFP3 respirator masks or powered respirators.

Although the vaccination has provided many healthcare workers with some valuable protection, the potential remains for resistant variants to emerge. As recorded in the most recent [SAGE minutes published](#):

- "Step 3 of the roadmap is ... likely to lead to 'R' being greater than 1";
- "It remains highly likely that there will be a further resurgence in hospitalisations and deaths...";
- "The full impact will not be seen until mid-June at the earliest".

This pandemic is clearly not over yet. No one should rest on their laurels, based on vaccination alone. HSE, PHE and DHSC should be taking full advantage of the present 'lull' before the third wave to resolve this RPE issue once and for all. Failure to do so would represent the ultimate betrayal of our healthcare workers.

Finally I should like to close by drawing your attention to the [EU policy](#) for respiratory protection of health care workers which, for almost a year now, has been that filtering facepiece masks to a minimum of FFP2/N95 standard, should be worn whenever coming in contact with people who have symptoms of COVID-19 and only wear a surgical mask if FFP masks are not available.

It speaks volumes that, in some parts of Europe, the public, just travelling on a bus, are required to protect themselves against inhalation of the virus through a requirement that they wear, not just 'face-coverings', but proper FFP2 or N95 respirator masks. Yet in the UK we cannot even provide our healthcare workers in covid-facing clinical settings with a similar level of protection.

In my long career as a safety practitioner I remember a time, not so long ago, when the UK used to lead Europe (if not the world) as an exemplar of best practice for protecting the health and safety of workers.

This was particularly true in connection with protection of workers from hazardous substances (chemical and microbiological). I have to say that I am dismayed to see how far we now lag behind.

Yours Sincerely

David Osborn BSc CMIOASH SpDipEM



cc : Ms Sarah Newton, Chair, Health and Safety Executive
 Professor Andrew Curran, Chief Scientific Officer HSE, Chair SAGE Environmental Modelling Group
 Dr Barry Jones, Chair, AGP Alliance

The Rt Hon Chris Skidmore MP, Member of Parliament for Kingswood - for onward forwarding as considered appropriate to:

The Rt Hon Matt Hancock MP, Secretary of State for Health and Social Care
 The Rt Hon Jo Churchill MP, Minister for Prevention, Public Health and Primary Care
 The Rt Hon Mims Davies MP, Parliamentary Under Secretary of State (Minister for Employment)
 The Rt Hon Jeremy Hunt MP, Chair of the Health Select Committee